

Wireless Network Support

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Current Status

- net80211 layer stable
 - high power ath cards (Senao, Ubiquiti, Wistron)
 - Public Safety Band (PSB), 4.9GHz
 - 900MHz ath cards (Ubiquiti, Zcomax)
- drivers:
 - ath, iwi, ral, ural dependable/improving
 - new drivers in or on-the-way: rum, wpi
- WPA support stable
- Andrea Bittau's raw packet support
- Intel firmware licensing (thank you flz!)

Ongoing/Future Work

- sam_wifi p4 branch nearly ready for CVS:
 - major architectural changes to net80211 (requires driver modifications)
 - new scanning support
 - Atheros protocol extensions (e.g. fast frames)
 - 802.11n support (see below)
 - WPS support (coming)

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802.11n: Background

- latest standard in the 802.11 series
- in Draft status (still), latest is D2.0
- focus on performance:
 - higher transmit rates (up to 135 Mb/s)
 - additional modulation schemes
 - channel bonding (HT20, HT40+, HT40-)
 - transmit aggregation
 - MIMO
- mucho new terminology (oh joy)!

802.11n: Why is it Interesting?

- Significant “range & rate” improvements
 - 2-3x (?) range (MIMO)
 - TCP (bidirectional) throughput on HT40 >160 Mb/s
 - UDP (unidirectional) throughput on HT40 >230 Mb/s
- Soon de facto standard (think 11g vs. 11b)
- Higher throughput taxes the system in new and interesting ways (e.g. TSO is interesting!)

80211n: Current Status

- sam_wifi p4 branch has initial support:
 - net80211 support
 - Marvell driver working (not in tree)
 - Atheros driver needs work (e.g. rate control)
 - ifconfig updated
 - wpa_supplicant needs changes

Ongoing/Future Work (more)

- wpa_supplicant update to 0.5.7
 - lots of bug fixes and improvements
 - gets us back on “stable branch”
⇒ blocked by NDIS support
- hostapd upgrade to 0.5.7
 - lots of bug fixes etc.
 - VLAN support
- wireshark, tcpdump, kismet, etc. getting 11n radiotap support

Ongoing/Future Work (cont)

- sam_vap p4 branch about to get active (finally):
 - multi-bss support
 - virtual-AP architecture
 - (Dynamic) WDS support
- ⇒ Evolutionary step from sam_wifi means it should be usable on 7.x systems

Open Issues

- legacy drivers continue to get little attention; e.g. wi
- NDIS emulation has no maintainer
- USB integration problematic
- wired/wireless roaming support (multi-path routing?)
- desktop integration (dbus?)
- will we make RELENG_7 branch?